

Mark Scheme for June 2010

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by Examiners. It does not indicate the details of the discussions which took place at an Examiners' meeting before marking commenced.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

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Question		Expected Answers	Marks	Additional Guidance
1	a	<p>...cheaper...not be melted... <input type="checkbox"/></p> <p>...less dense...not be melted... <input checked="" type="checkbox"/></p> <p>...cheaper and less dense. <input checked="" type="checkbox"/></p> <p>...weaker...lower melting point. <input type="checkbox"/></p>	[1]	both ticks needed for 1 mark
	b	<p>...farther apart... <input type="checkbox"/></p> <p>...out of its solid structure... <input checked="" type="checkbox"/> (1)</p> <p>...break the molecules... <input type="checkbox"/></p> <p>...more tangled... <input type="checkbox"/></p> <p>...higher crystallinity... <input checked="" type="checkbox"/> (1)</p>	[2]	if 3 ticks deduct 1 mark 4 or 5 ticks = 0 marks
	c	<p>any three from: cardboard made from wood / recycled paper and polystyrene from oil; wood is renewable / can be grown and oil is non-renewable / will run out; cardboard is <u>easier</u> to recycle (than polystyrene); cardboard is biodegradable / breaks down / rots / decomposes and polystyrene does not / takes much longer;</p>	[3]	
Total			[6]	

Question		Expected Answers	Marks	Additional Guidance
2	a	<p>Thickness / time weights left on fibre / method of placing weight on fibre are factors that will change the outcome of the test (1)</p> <p>thicker will need greater force / longer time makes breaking more likely / dropping weight on fibre causes bigger force (in the fibre) owtte (1)</p>	[2]	<p>allow 1 mark for any well-reasoned factors, e.g. batch of material used in the repeats for a single fibre type</p> <p>allow 1 mark for the reason for that factor.</p>
	b	<p>more reliable (1)</p> <p>idea of smaller range (1)</p>	[2]	<p>ignore 'accurate' or 'fair test'</p> <p>allow 'George's results are closer to each other' / 'Mary's results have outliers'</p> <p>allow correct numerical values of ranges. 0.60-1.45 and 0.80 – 1.00 or 0.85 and 0.2</p>
	c	0.9 (1)	[1]	
Total			[5]	

Question		Expected Answers	Marks	Additional Guidance
3	a	<p>...to make poly(propene)... <input type="checkbox"/></p> <p>...to make the product... <input checked="" type="checkbox"/> (1)</p> <p>the sustainability of crude oil <input type="checkbox"/></p> <p>the useful lifetime of the product <input checked="" type="checkbox"/> (1)</p> <p>...impact of disposing... <input type="checkbox"/></p>	[2]	<p>if 3 ticks given deduct 1 mark</p> <p>4 or 5 ticks = 0 marks</p>

Question		Expected Answers	Marks	Additional Guidance										
3	b	<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; width: 150px; height: 30px;"></div> <div style="border: 1px solid black; padding: 2px;">...so less energy is needed...</div> </div>	[1]											
		<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 2px;">...forces between polymer chains...</div> <div style="border: 1px solid black; width: 150px; height: 30px;"></div> </div>												
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		Total			[3]									
4	a	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="background-color: #cccccc;">E</td> <td>B</td> <td>C</td> <td>D</td> <td>F</td> <td>A</td> </tr> </table>	E	B	C	D	F	A	[2]	all correct = 2 marks (E)BCxxx gets 1 mark				
		E	B	C	D	F	A							
	b	i	<table style="width: 100%;"> <tr> <td style="width: 60%;">John</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> <td rowspan="4" style="width: 10%; text-align: center; vertical-align: middle;">(1)</td> </tr> <tr> <td>Kate</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td>Nora</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Mike</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	John	<input type="checkbox"/>	(1)	Kate	<input checked="" type="checkbox"/>	Nora	<input type="checkbox"/>	Mike	<input type="checkbox"/>	[1]	tick in any other box = 0
			John	<input type="checkbox"/>	(1)									
Kate	<input checked="" type="checkbox"/>													
Nora	<input type="checkbox"/>													
Mike	<input type="checkbox"/>													
		ii	<table style="width: 100%;"> <tr> <td style="width: 60%;">John</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> <td rowspan="4" style="width: 10%; text-align: center; vertical-align: middle;">(1)</td> </tr> <tr> <td>Kate</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Nora</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Mike</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	John	<input type="checkbox"/>	(1)	Kate	<input type="checkbox"/>	Nora	<input type="checkbox"/>	Mike	<input checked="" type="checkbox"/>	[1]	Tick for John or Kate scores 0 marks accept any clear and unambiguous response. allow Nora for 1 mark. allow Nora and Mike for 1 mark.
			John	<input type="checkbox"/>	(1)									
Kate	<input type="checkbox"/>													
Nora	<input type="checkbox"/>													
Mike	<input checked="" type="checkbox"/>													
Total			[4]											

Question		Expected Answers	Marks	Additional Guidance	
5	a	<p>Natural chemicals... <input type="checkbox"/></p> <p>Ozone absorbs ultraviolet... <input type="checkbox"/></p> <p>Pollutant chemicals... <input checked="" type="checkbox"/> (1)</p> <p>Ultraviolet radiation breaks up... <input type="checkbox"/></p> <p>...are not reversible. <input checked="" type="checkbox"/> (1)</p> <p>...protects living things... <input type="checkbox"/></p>	[2]	if 3 ticks given deduct 1 mark 4, 5 or 6 ticks = 0 marks	
	b	<p>stated benefit: look good, feel good, get a tan, helps relaxing, vitamin <u>D</u> (1)</p> <p>benefit outweighs risk (1)</p>	[2]	second mark here must have a judgement on benefit and risk, and why the benefit is greater	
Total			[4]		
6	a	i	E (1)	[1]	
		ii	D, E and F (1)	[1]	all 3 needed accept names (ultraviolet, X-ray, gamma) allow mis-spellings
		iii	A, B(1)	[1]	either order allow also C as an option accept names of regions (radio, infrared, light) allow mis-spellings

Question		Expected Answers	Marks	Additional Guidance
6	b	Bone absorbs... <input checked="" type="checkbox"/> (1)	[2]	if 3 ticks given deduct 1 mark 4 or 5 ticks = 0 marks
		Bone reflects... <input type="checkbox"/>		
		Bone transmits... <input type="checkbox"/>		
		High intensity... <input type="checkbox"/>		
		Light parts of the film... <input checked="" type="checkbox"/> (1)		
		Total	[5]	
7	a	Virus (1)	[1]	
	b	skin / sweat / tears rapidly/quickly/fast toxins/poisons symptoms/signs	[3]	all four correct = 3 marks three correct = 2 marks two correct = 1 mark no marks for only one correct allow mis-spellings

Question			Expected Answers	Marks	Additional Guidance																
7	c	i	<table border="0"> <tr> <td>...every three years.</td> <td> <table border="1"> <tr> <td>true</td> <td>false</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table> </td> </tr> <tr> <td>...10 times more cases...</td> <td> <table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> </td> </tr> <tr> <td>The number of cases halved...</td> <td> <table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> </td> </tr> </table>	...every three years.	<table border="1"> <tr> <td>true</td> <td>false</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table>	true	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	...10 times more cases...	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The number of cases halved...	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	[2]	all three correct = 2 marks two correct = 1 mark		
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		ii	<p>Any two from: measles is contagious / infectious / spreads (1)</p> <p>to reduce the chances of measles spreading to a susceptible individual / making children seriously ill (1)</p> <p>virus more likely to mutate (1)</p> <p>So vaccinated individuals may get disease / vaccine no longer works (1)</p>	[2]	<p>ignore catching</p> <p>do not allow just ill</p> <p>this point must link to mutation of virus</p>																
		iii	<table border="1"> <tr> <td>... suffer from a mild fever</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>... against the flu virus</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>... not ... vaccinated</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>... 95% of children are vaccinated</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	... suffer from a mild fever	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	... against the flu virus	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	... not ... vaccinated	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	... 95% of children are vaccinated	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[2]	all four correct = 2 marks two or three correct = 1 mark
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Question		Expected Answers	Marks	Additional Guidance
7	d	<p>Red blood cells... <input type="checkbox"/></p> <p>...antibodies...very quickly. <input checked="" type="checkbox"/> (1)</p> <p>...confusing the measles... <input type="checkbox"/></p> <p>The body's natural barriers... <input type="checkbox"/></p> <p>...produce antibodies... <input checked="" type="checkbox"/> (1)</p>	[2]	if 3 ticks given deduct 1 mark 4 or 5 ticks = 0 marks
Total			[12]	
8		<p>Doctor / scientist knows who is taking the placebo (1)</p> <p>patient does not know who has placebo (1)</p> <p>wrong to withhold treatment from patient / won't cure patient / false hope (1)</p>	[3]	<p>allow 1 mark for 'neither doctor nor patient knows'</p> <p>'ethical' and 'morally wrong' need qualification</p>
Total			[3]	

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